This article will discuss the role hand washing can play in preventing the spread of germs and infection.

**How Germs Spread**

The main way that illnesses like colds and flu are spread is from person to person in respiratory droplets of coughs and sneezes. This is called "droplet spread."

This can happen when droplets from a cough or sneeze of an infected person move through the air and are deposited on the mouth or nose of people nearby. Sometimes germs also can be spread when a person touches respiratory droplets from another person on a surface like a desk and then touches his or her own eyes, mouth or nose before washing their hands. We know that some viruses and bacteria can live 2 hours or longer on surfaces like cafeteria tables, doorknobs, and desks (CDC, 2004).

Most flu is transmitted through the air in virus laden droplets propelled by coughs and sneezes. Our hands can pick up those droplets from any number of surfaces. Hands are an important link in the transmission chain.

Young children are at an increased risk for contracting infectious diseases because they (Minnesota Department of Health, 2008):

- Spend time in large groups and are exposed to many new germs
- Have immune systems that are not fully developed to fight germs
- Do not have complete control of body fluids that contain germs
- Have personal habits that spread germs such as thumb sucking, rubbing eyes and putting things in their mouths

**Why should I wash my hands?**

To prevent the spread of germs (e.g., bacteria, viruses and other microbes) and infection you should regularly and properly wash your hands. You can infect yourself by accumulating germs on your hands and then touching your eyes, nose or mouth. Washing hands can limit the transfer of bacteria, viruses and other microbes.

**When should I wash my hands (CDC, 2004, 2008)?**

- After playing outside
- After touching people, surfaces and objects
- After sneezing or coughing
- After using the bathroom
- After handling equipment
- Before and after preparing food
- Before eating
- Before and after touching a sick or injured person
Before and after interacting with other people and animals
After handling garbage
Before and after treating a cut or wound

**How do I wash my hands** (Harvard Medical School, 2007)?

Alcohol based hand sanitizers are more effective than antibacterial soaps. Soap and water can be highly effective in ridding the hands of germs. Here are some guidelines for washing hands with soap and water:

- Turn on warm water (cold is OK if there is no warm water – cold or warm water are recommended because they increase the likelihood of a longer hand washing session; hot water is more damaging to the skin)
- Add soap (regular liquid soap – antibacterial is OK if there is no regular soap)
- Rub hands for at least 15-20 seconds, wash one hand with other then switch hands (this reduces bacterial counts by about 90%; When another fifteen seconds of rubbing is added bacterial counts drop to close to 99.9%)
- Rub wrists, back of hands, between fingers, fingertips, thumbs, under fingernails
- Point fingers down and rinse soap completely from hands and wrists
- Dry hands completely with a paper towel (or hand blow dryer)
- Use the paper towel that you dried your hands with to turn off water faucet

**Additional Hand washing suggestions** (Harvard Medical School, 2007).

1. Don’t scrub: Scrubbing can damage skin, especially if you wash often. The resulting cracks and small cuts can give pathogens a place to grow.
2. Keep fingernails short: Bacteria like to live under fingernails. Long nails make it more difficult to keep those areas clean.
3. Use hand lotions, especially during winter: Keeping the skin of the your hands intact is necessary for good hand hygiene.
4. Don’t wash too fast: It takes about a minute to properly wash and dry your hands.

Soap and water do not kill germs. They work by mechanically (through rubbing of the hands) removing them from your hands. Running water alone can remove some germs. Soap increases the overall effectiveness by pulling undesired material off the skin and into the water.

If your hands are visibly dirty or have food on them, soap and water are more effective than the alcohol based hand sanitizers because the proteins and fats in food tend to reduce alcohol’s germ killing power. This is why soap and water are favored in the food service industry. Many liquid soaps also include a moisturizing agent, so your hands may not dry out as quickly from frequent hand washing.

Germs can grow on bar soap and easily spread from one person to another. Bar soap can be used in a household if no one has skin infections (Minnesota Department of Health, 2008). Bar soap should not be used in public restrooms.

**How do I wash my hands with an alcohol based hand sanitizer?**
Alcohol’s power comes from its ability to change the shape of proteins crucial to the survival of bacteria and viruses. Most of the alcohol-based cleansers are 62% alcohol. Alcohol alone would completely dry out people’s hands so various skin conditioners are added. Alcohol does an excellent job of getting rid of bacteria and even some viruses. Alcohol does not kill everything – bacterial spores, some protozoa and some “nonenveloped” viruses are not affected. The alcohol-based rub needs to come into contact with all of the surfaces of the hands: back, front, in between fingers and so forth. Small amounts are really no better than washing with plain soap and water (Harvard Medical School, 2007). Here are some guidelines for alcohol-based hand sanitizers (Mayo Clinic, 2009; Harvard Medical School, 2007):

- Apply enough of the product to the palm of your hand to wet your hands and wrists completely
- Rub your hands together, covering all surfaces, for up to 25 seconds or until they are dry
- If your hands are visibly dirty, wash with soap and water.

References


